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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/876,414	06/16/97	WICKBOLDT P	IL-10092

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HENRY P SARTORIO
DEPUTY LABORATORY COUNSEL FOR PATENTS
LAWRENCE LIVERMORE NATIONAL LABORATORY
P O BOX 808 L 703
LIVERMORE CA 94551

EXAMINER	
CHRISTIANSON,K	
ART UNIT	**PAPER NUMBER**
2813	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
08/876,414	Wickboldt et al.
Examiner	**Group Art Unit**
Keith Christianson	1104

☒ Responsive to communication(s) filed on *Jun 16, 1997*.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) *1-20* is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-20* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Specification

1. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.*(examiner's emphasis)*

Where applicable, the abstract should include the following:
(1) if a machine or apparatus, its organization and operation;
(2) if an article, its method of making;
(3) if a chemical compound, its identity and use;
(4) if a mixture, its ingredients;
(5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

Appropriate correction is required.

2. The disclosure is objected to because of the following informalities: on page 3, line 16 the word "doping" is misspelled; on page 4, line 14 is the word "carry" intended; on page 4, line 20 (also page 9, lines 4 and 5; also claim 7, line 4) the symbol "J" for Joule should be capitalized

since it is person's name; on page 7, line 18 the word "chemical-active" is misspelled; on page 8, line 8 the word "condensate" is misspelled.

Appropriate correction is required.

Claim Objections

3. Claim 8 is objected to because of the following informality: the units of dose are omitted.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. The term "greater" in claim 19 is a relative term which renders the claim indefinite. The term "greater" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. In particular, one of ordinary skill in the art would not be able to compare the two methods because none of the processing conditions of the previous GILD technique are given.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 9, 16-18 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Narayan et al. (U.S. Patent No. 4,147,563). Narayan et al. teach depositing a dopant on a surface to be doped, followed by one or more energy pulses which melts a portion of the semiconductor which is silicon which recrystallizes as doped polysilicon, the molten region incorporating the dopant atoms (claim 1, also Abstract)

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 2-6, 10-12, 15 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Narayan et al. (U.S. Patent No. 4,147,563). Narayan et al. describe the process of

depositing the doping material under vacuum deposition (column 3, lines 5-20), using a pulsed ruby laser energy beam (column 3, lines 21-28). But, Narayan et al. do not describe deposition of the dopant material using one of the techniques of PECVD, sputtering, condensation, thermal decomposition CVD or photolytic decomposition; nor the dopant atmosphere used. Also, the use of pulsed ion beam energy is not discussed, nor the various types of lasers which can be used.

However, to one of ordinary skill in the art at the time of the invention the use of one of the aforementioned techniques (i.e. PECVD, etc.) as well as the dopant atmosphere would be obvious due to the fact that all of these processes are commonly used to deposit doping layers. Also, to one of ordinary skill in the art at the time of the invention it would be obvious that either one of various types of pulsed lasers or pulsed ions could be used as both are capable of supplying the necessary energy. Thus, to one of ordinary skill in the art it would have been obvious to combine the deposition and doping techniques of Narayan et al. along with the deposition, dopant atmosphere, laser and ion variations known to one of ordinary skill in the art at the time of the invention in order to fabricate semiconductor material with electrically active dopants for inclusion into semiconductor devices.

Claims 7, 8, 13, 14 and 20 of the instant application teaches selection of processing ranges that differ from the prior art only by slightly different ranges. In claim 7, the excimer pulse wavelength, number of pulses, energy of the pulses, and pulse length are taught; in claim 8 the dopant atom concentration is taught; in claim 13 the wavelength of the laser is taught, in claim 14 the energy pulse duration is taught; while in claim 20 the number of energy pulses is taught.

These claims are prima facie obvious without showing that the claimed ranges achieve unexpected results relative to the prior art range. In re Woodruff, 16USPQ2d 1935, 1937 (Fed. Cir. 1990). *See also* In re Huang, 40 USPQ2d 1685, 1688 (Fed. Cir. 1996) (claimed ranges of a result effective variable, which do not overlap the prior art ranges, are unpatentable unless they produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art). *See also* In re Boesch, 205 USPQ 215 (CCPA) (discovery of optimum value of result effective variable in known process is ordinarily within skill of art) and In re Aller, 105 USPQ 233 (CCPA 1955) (selection of optimum ranges within prior art general conditions is obvious).

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keith Christianson whose telephone number is (703) 305-4029. The examiner can normally be reached on Monday to Friday from 6:30 AM to 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Bowers, can be reached on (703) 308-2417. The fax phone number for this Group is (703) 305-3432.

KC

March 31, 1998

CHARLES L. BOWERS, JR.
SUPERVISORY PATENT EXAMINER
GROUP 1100